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April 16, 1957

*Doc 95
Hawley #3.
file: Burial
Container, weapons*

F I N A L R E P O R T

ON

UNDERWATER TESTING OF

STAINLESS STEEL BOXES

1210-E-6i

25X1

Universal Match Corporation
Maynard Armament Division
Post Office Box 25
Maynard, Massachusetts

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This program required that six stainless steel cans be subjected to underwater testing. Two cans were to be destructively tested to find their collapsing point and the remaining four were to be subjected to prolonged exposure at a pressure equivalent to 15 feet of water.

In order to conduct the above tests, this company designed and had constructed a new deep water test tank 8 feet long and 36 inches in diameter. The tank was equipped with two hinged quick acting manholes, one on the end and one on top of the tank. In addition, the tank had three 6 inch diameter sight glasses down both sides.

After installation of the tank, two cans one 50 inches and one 8 inches long were subjected to a destructive test. In this test the cans were weighted down with lead scrap and placed inside the water filled tank. The tank was then sealed and compressed air was slowly bled into the tank until the pressure was two psig. It was then shut off and the cans were examined by viewing through the inspection ports with the aid of flashlights. After 2-3 minutes the air was turned on again and the pressure increased to 4 psig and the cans re-examined. This process was repeated up to 20 psig. At this point a sound was heard which was thought to come from the collapse of one of the cans. At the request of the Project Officer, who was present at the test, the pressure was released and the cans

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removed and inspected and it was found that the 8 inch can had collapsed. The results of the test are shown below in their chronological order.

<u>Pressure (psig)</u>	<u>Simulated Depth (ft.)</u>	<u>Can (8")</u>	<u>Can (50")</u>
0 to 2 lbs.	4.6	No noticeable change	
4 lbs.	9.2	Slight bulge	O.K.
6 lbs.	13.8	No change	
8 lbs.	18.4	More Bulging	O.K.
10 lbs.	23.0	Large bulge	Slight bulge
12 lbs.	27.6	" "	Large bulge
14 lbs.	32.2	" " including welded side.	Very bad bulge
16 lbs.	36.8	No change	
18 lbs.	41.4	Large bulge on top	Bad bulge on 4 sides
20 lbs.	46.0	Same condition	

Examination showed that the 8" can was full of water due to one side buckling in and no longer mating with the gasket (See Photograph). The 50" can, however, was perfectly dry and it appears that the greater length allowed the collapse without interrupting the seal at the gasket (See Photograph).

The prolonged exposure test at 15 ft. was omitted by agreement with the Project Officer, due to expenditure of the funds for this task.

Expiration Date - 30 June 1957

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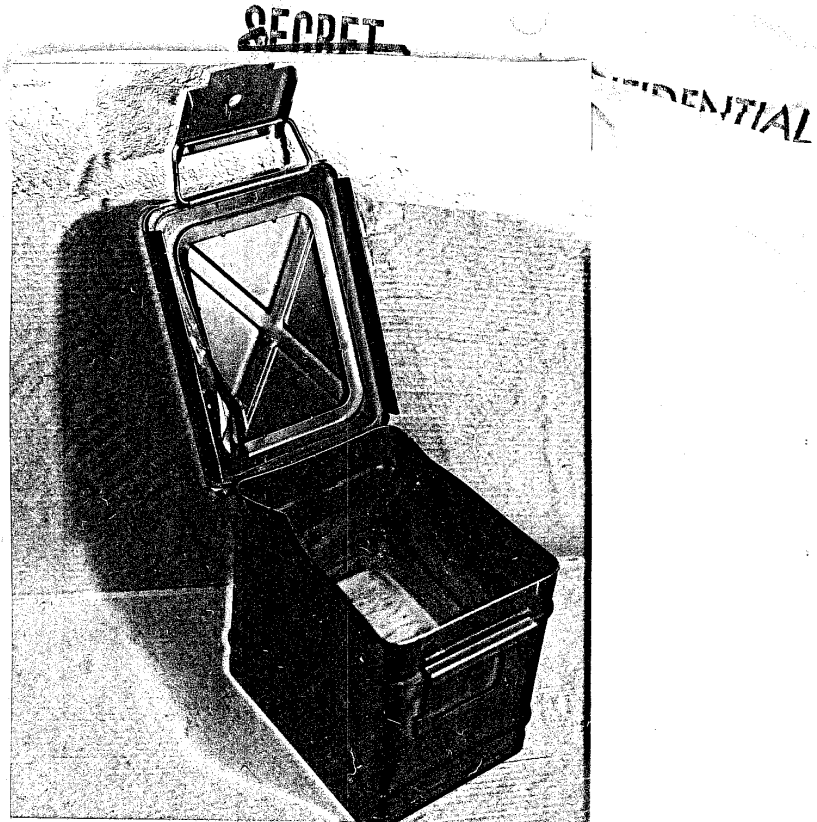


Figure 1

8" Can After Collapse

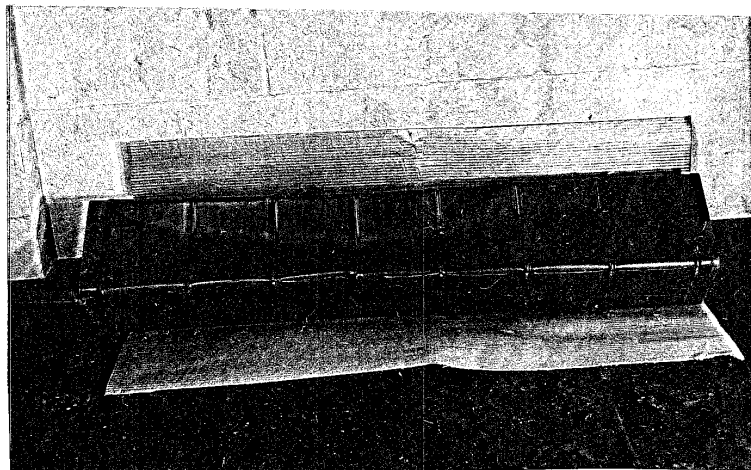


Figure 2

15" Can still watertight despite deep dishing.

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